

JOHN L. KUCKER.

2 Sheets--Sheet 1.

Improvement in Brick-Machines.

No. 115,218.

Patented May 23, 1871.

Fig. 1.

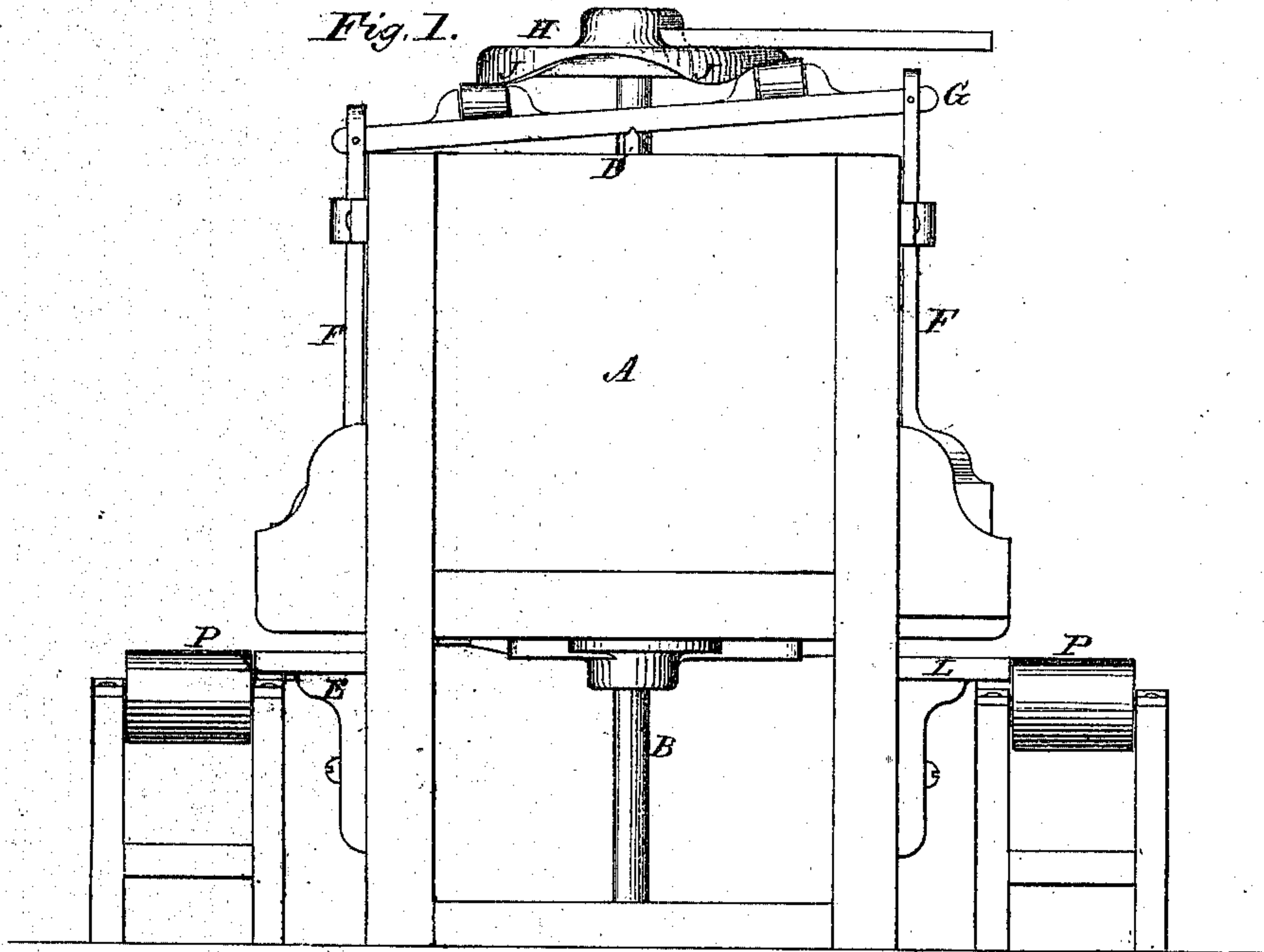
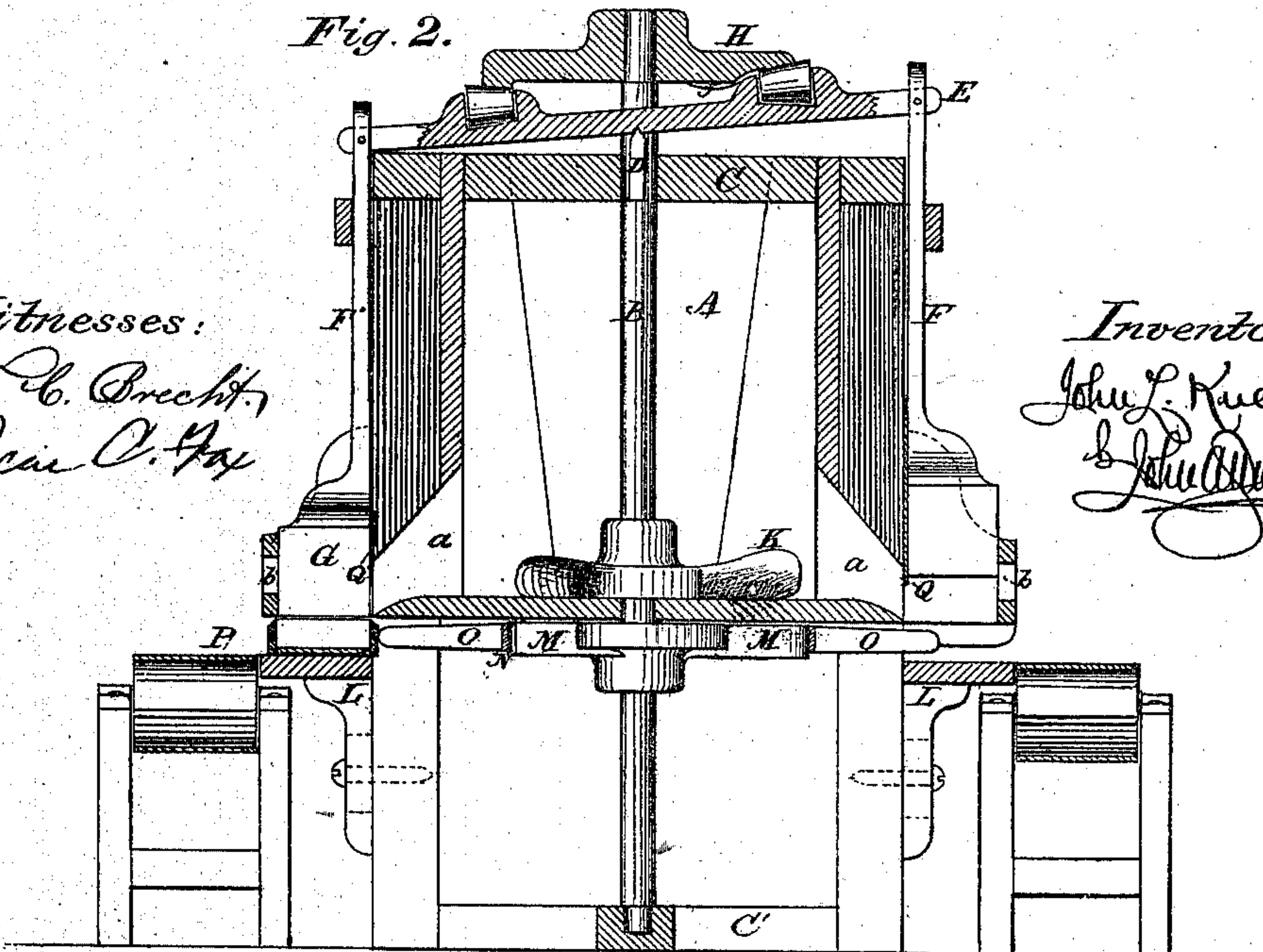


Fig. 2.

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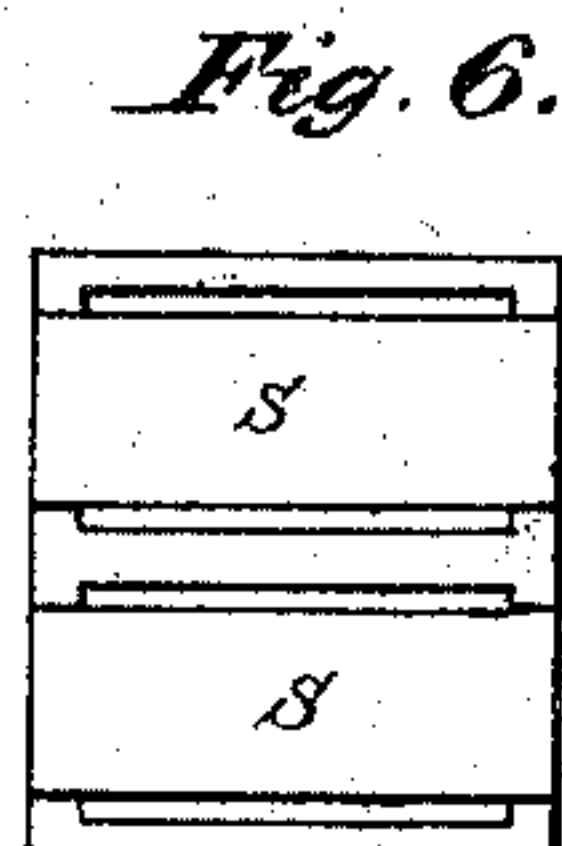
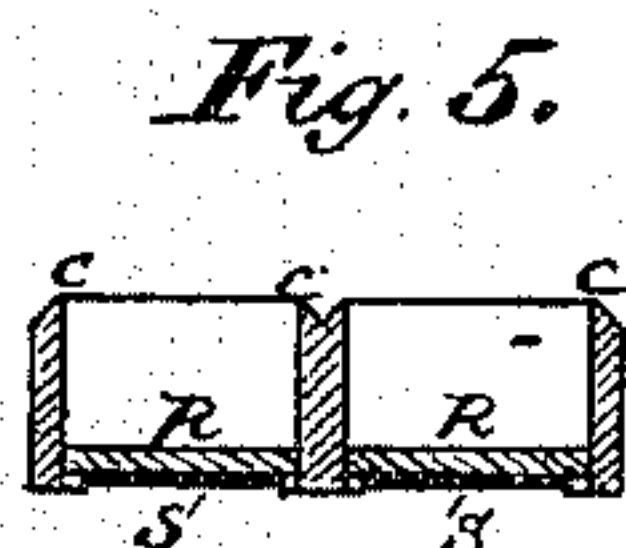
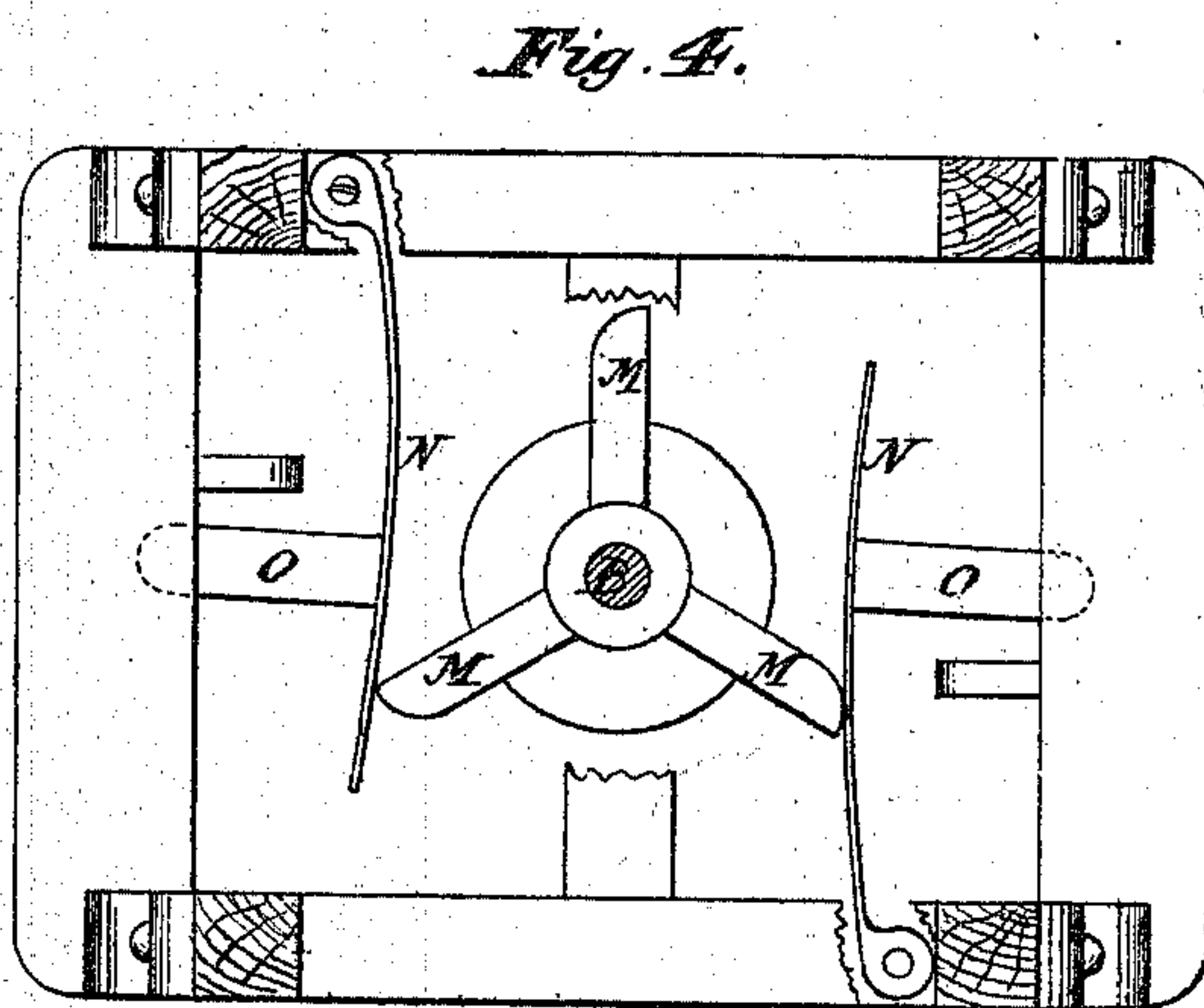
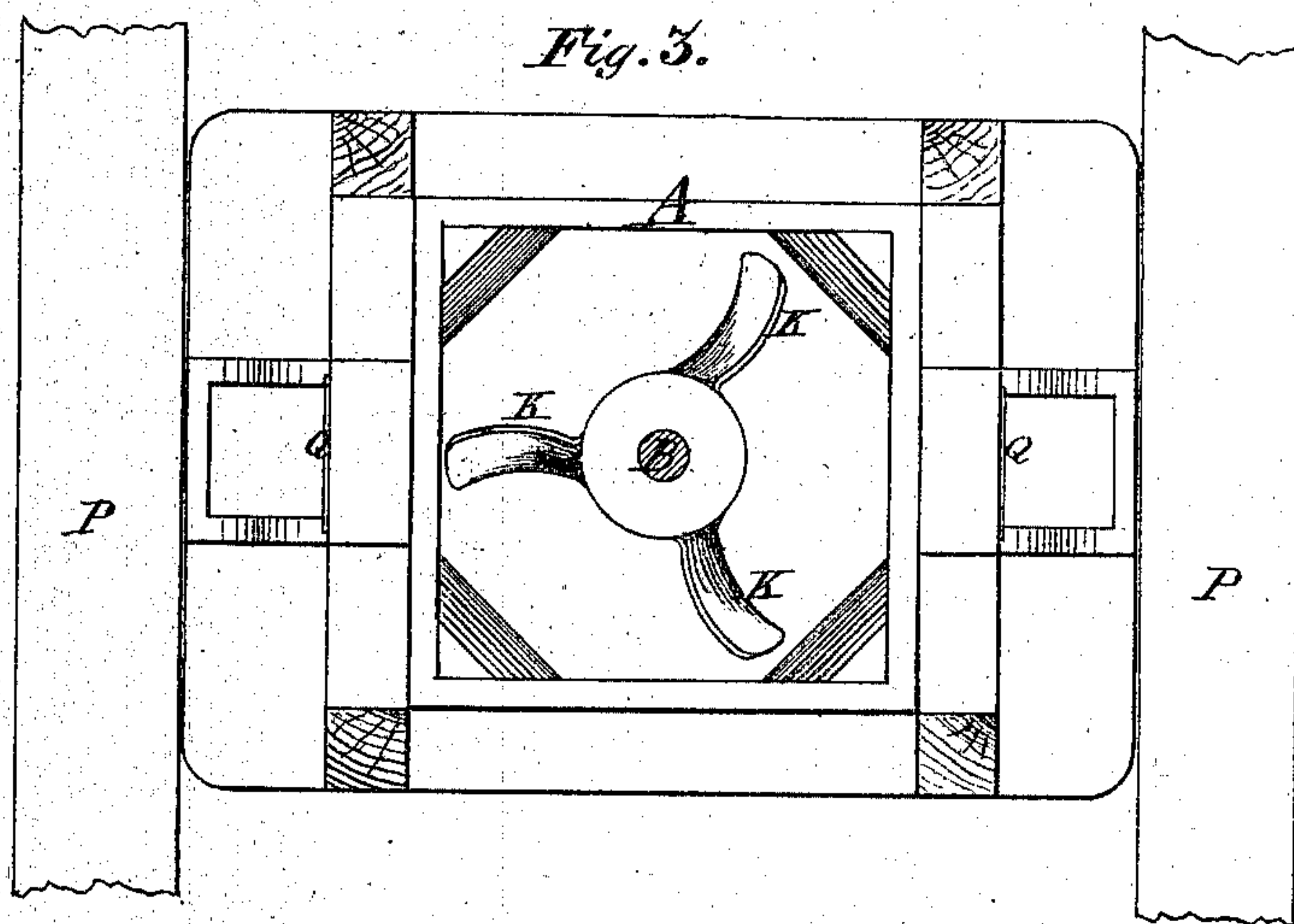


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UNITED STATES PATENT OFFICE.

JOHN L. KUCKER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. 115,218, dated May 23, 1871.

To all whom it may concern:

Be it known that I, JOHN L. KUCKER, of the city and county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Brick-Machines; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand and use the same, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a side elevation of the device, illustrating my invention. Fig. 2 is a central longitudinal section thereof. Fig. 3 is a top view of the interior of the hopper and outside parts thereof. Fig. 4 is a bottom view. Fig. 5 is a transverse vertical section of the mold. Fig. 6 is a bottom view thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to brick-machines; and consists of a rocking-beam, which carries the plungers, and a cam-faced wheel, arranged above the beam, so that the wheel depresses one plunger; thus the other plunger is elevated without the assistance of weights, springs, or other appliances. It further consists in the rocking-beam having a fulcrum on the cross-piece at the top of the hopper, and passing the main shaft through the beam, which shaft has secured to it the cam-faced wheel which operates the rocking-beam. It also consists in flat springs, which are secured at one end to the under side of the hopper or the frame-work thereof, and carry pushers, which are pressed against the filled molds by means of fingers on the central shaft, so that the said molds are thrown off. It further consists in an arrangement of certain parts with the main or central shaft. It also consists in molds having their upper edges beveled outwardly from the inner sides of the molds, in order to form sharp cutting-edges, thus preventing lodgment of clay between the top of the mold and the plunger, and causing the brick to be well molded. It finally consists in providing the molds with sliding spring-bottoms, for the purposes to be hereinafter described.

In the drawing, A represents the hopper, which may be constructed as usual, though

preferably of tapering form internally. B represents the central shaft, which has bearings in cross-pieces C C' at the top of and below the hopper, and passes through the bottom thereof. Pieces D rise from the top cross-piece C, and form the fulcrum of a rocking-beam, E, which extends transversely at the top of the hopper, and has its ends jointed to the bars or shafts F, which extend vertically at the sides of the hopper and carry the plungers G. The shaft B passes through the rocking-beam E, and carries a wheel, H, which is formed on its under side with a series of cams, J, which come in contact with rollers mounted on the upper face of the rocking-beam E at opposite points beyond the fulcrum, so that the rotation of the cam-faced wheel H will elevate one end of the beam and depress the other end, whereby a reciprocating motion is imparted to the plungers, the operation being uniform and powerful, as is essential and important in such cases. The shaft will be provided with the ordinary beaters, which are well known and require no further description. The clay passes toward the exit-openings a at the sides of the bottom of the hopper, and is forced therethrough by means of blades K, which radiate from a hub on the shaft B, and, in the present case, are three in number. These blades are of spiral form, or curved somewhat after the manner of propeller-blades, so that the clay, instead of being merely swept around the bottom of the hopper, is forced away radially, directed toward the openings a, and, as the blades pass the latter, it is pressed into said openings and forced out beneath the plungers and over the molds. The blades are of an uneven number, or are arranged in such a manner that they only reach the openings a when the plungers are elevated, so that the clay is fully forced out toward the molds when the plungers, on descending, again reach said molds. L represents a table, which is arranged below the plungers and supported on the frame-work of the hopper. This table is designed to hold the molds while the clay is being forced into them, and is made vertically adjustable, in order to be raised and lowered relatively to the size of bricks to be produced.

When the mold rests on the table, and clay is discharged from the hopper, it passes over

the mold, and is then pressed into the latter by the descending plunger. The filled mold is then ready to be removed. On the shaft B, below the hopper, there radiates a number of fingers, M, secured to a hub, which is keyed or otherwise fastened to the shaft, so as to rotate therewith. These fingers come in contact with springs N, which have one of their ends secured to the frame-work and carry at or near the other ends, which are free, pushers O, which receive reciprocating motion by means of the fingers M—in one direction by the rotation and pressure of the fingers, and in the other direction by the reaction of the springs N. The pushers play in spaces between the tables L and the plungers, and make their advance motion when the plunger rises; consequently the filled molds will be forced from beneath the plungers so as to permit empty molds to be substituted. The filled molds will be pushed transversely on the tables L, and received on endless aprons P, whereby they are conveyed entirely clear of the tables and plungers, and out of the way of subsequent filled or empty molds. They may then be carried to the drying floor or house or other place, as is required.

Should the clay flow too freely or slowly to the molds it may be regulated by a plate, Q, which slides over the openings *a* between the back of the plunger and the hopper, and by adjusting said plate the flow of clay may be increased or diminished. The surplus clay from the molds may be discharged through the openings *b* in front of the boxes in which the plungers play.

It will be seen that the plungers receive powerful depression by means of the rocking-beam and cam-faced wheel, while a single wheel operates both plungers. There is, furthermore, a simple arrangement of parts; a single shaft only is required for operation of the plungers, blades, and pushers. The blades are simple in construction and effective in operation. The adjustable plates and tables are important, in view of different sizes of bricks that may be required.

In Figs. 5 and 6 I show molds of peculiar construction. The upper edges of the sides and ends are beveled so as to form sharp edges, *c c*, so that when the plunger presses the clay into the mold the clay will be smoothly cut off, which is not the case in molds with flat-top edges, since some clay will lie on said edges and be pressed against them by the plunger, thereby preventing the plunger coming flush with the top of the mold, and con-

sequently not producing a perfect brick. The sharp edges *c c* will remedy these evils.

In many cases the molded bricks do not readily slide from the mold when overturned on the drying floor or room. This necessitates the workman pressing the brick with his hands, which, in a measure, marks and damages the brick and occupies time. I overcome these objections by forming the bottoms R of the molds so as to slide vertically, and by means of springs S to return to their normal position if once removed therefrom. The molds are laid with their sliding bottoms S on the work-table—in the present case the table L—and then filled with clay, as usually. When the workman carries the filled molds to the drying floor or room he overturns the molds. Should the molded clay not remove readily the fingers are pressed against the sliding bottoms, whereby the clay is started. The bottoms then return to the proper positions by means of the springs S. A number of molds may be united together, so as to be filled and emptied at the same time; but a single, double, or compound mold will work equally well with the parts heretofore set forth.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The rocking-beam E and plungers G, in combination with the cam-faced wheel H, arranged and operating substantially as and for the purpose described.

2. The rocking-beam E and fulcrum D, in combination with the perforated shaft B and cam-faced wheel H, the parts being constructed, arranged, and operating as described.

3. The flat springs N and pushers O, secured as shown, in combination with the fingers M, operating in the manner and for the purpose described.

4. The arrangement, with a single shaft, B, of the rocking-beam E, cam-faced wheel H, blades K, and fingers M, to operate as set forth, for the purpose described.

5. The brick-mold herein described, when provided with the sharp cutting-edges *c c*, beveled outwardly at the top, as shown, for the purpose described.

6. The mold provided with sliding spring-bottoms, substantially as and for the purpose described.

The above signed by me this 27th day of March, 1871.

Witnesses: JOHN L. KUCKER.
JOHN A. WIEDERSHEIM,
WM. M. TAYLOR.